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AIR FORCE CAMBRIDGE RESEARCH LABORATORIES
L. G. HANSCOM FIELD, BEDFORD, MASSACHUSETTS

**Bibliography of AFCRL Reports on
Meteorological Equipment**

GEORGE McLEAN
MARILYN CARCHIA

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AEROSPACE INSTRUMENTATION LABORATORY PROJECT 6670

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Abstract

This bibliography presents a listing of papers and publications by personnel of the Aerospace Instrumentation Laboratory (AFCRL) involved in the design, development, and test of meteorological equipment. Also included are related Scientific and Final Reports published under contract. The bibliography is divided into groups by type of report (that is, AFCRL Reports, Journal Articles, and Contract Reports). Subject and Author indexes at the rear of the report may be used to locate reports that are of interest to the user. All reports listed in this paper, if not available from the Defense Documentation Center (DDC), can be obtained from the author. AD numbers are listed where available.

Contents

1. INTRODUCTION	1
2. AFCRL REPORTS	2
2.1 Instrumentation Papers	2
2.2 Geophysical Research Notes	4
2.3 Research Notes	4
2.4 Research Reports	4
2.5 Environmental Research Papers	4
2.6 Air Force Surveys in Geophysics	4
2.7 Special Reports	5
3. JOURNAL ARTICLES AND CONFERENCE PROCEEDINGS	5
4. CONTRACT REPORTS (SCIENTIFIC AND FINAL)	9
5. MISCELLANEOUS REPORTS	22
6. SUBJECT INDEX	23
7. AUTHOR INDEX	30

Bibliography of AFCRL Reports on Meteorological Equipment

I. INTRODUCTION

This bibliography presents a comprehensive listing of In-house Reports, Journal Articles, and Contractor Scientific and Final Reports, related to work performed under sponsorship of the Air Force Cambridge Research Laboratories (AFCRL) in the meteorological equipment area from 1960 to September 1969.

The survey has been prepared in response to requests by visitors to the meteorological equipment branches of the Aerospace Instrumentation Laboratory, who have had difficulty in locating papers describing this work.

This bibliography presents as complete a listing as possible on reports covering the design, development, and test of meteorological equipments. These equipments have been developed in order to provide the Air Weather Service, (MAC), and their support groups, such as Weather Detachments at the Eastern and Western Test Ranges, with operational and special capabilities. Close liaison has been effected with the Army, Navy, Coast Guard, U.S. Weather Bureau, FAA, NASA, and other Government Agencies.

Equipments covered by these listed reports have been developed under Project 6670, Atmospheric Sensing Techniques; Project 6020, Aircraft Meteorological Sensors and Techniques; and Project 6682, Test Range Meteorological Support.

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Exploratory development efforts carried out under Project 6670 frequently lead to new or vastly improved conventional measuring equipments and, in some cases, provide combat personnel with specialized tactical equipments. Ground-based balloon-launched and rocket-launched equipments and ground sensors are developed under this project.

Under Project 6020, the objective has been to develop sensors and techniques; including expendable sensors, that can be used on aircraft or dropped from the aircraft to (a) detect areas of hazardous meteorological conditions ahead of the aircraft, or (b) collect meteorological data for operational and climatological applications. (Project 6020 has recently been absorbed by Project 6670.)

Under Project 6682, the equipment developments are part of a continuing program for the development of necessary meteorological instrumentation to meet the specialized needs of the test ranges.

Earlier work sponsored by the Aerospace Instrumentation Laboratory was in support of Weather System 433L. Some of the reported work is directly, or in part, a continuation of the work begun under 433L.

Some of the reports listed describe the design of equipment, and some describe the scientific principles involved. Others delve into the results of studies based on data gathered by the equipment, and some, more research-oriented than developmental, describe the feasibility studies conducted as the first step in an orderly development cycle.

We hope that this listing will provide users with an easier means for obtaining research and developmental results applicable to their specialized interests. Supplements will be issued at intervals to update this listing.

2. AFCRL REPORTS

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P.I. Hershberg, Apr 1960. AFCRC-TR-60-235; AD 250 585
- No. 16 AIDE-Altitude Integrating Device, Electronic, P.I.
Hershberg, J.R. Griffin, and R.H. Guenthner, Dec 1960.
AFCRL-TR-60-437; AD 225 824
- No. 25 Evaluation of Modification to Antenna of Rawin Set
AN/GMD-2, Konstantins Pocs, Jan 1963. AFCRL-63-211;
AD 298 980

No. 28 Error Analysis of the Modified Humidity - Temperature Measuring Set AN/TMQ-11, R.W. Lenhard, Jr., Major, USAF, and B.D. Weiss, Aug 1963. AFCRL-63-845; AD 416 341

No. 29 Evaluation of a Varacter Diode Parametric Amplifier for Rawin Set AN/GMD-2, Konstantins Poos, Sep 1963. AFCRL-63-761; AD 423 824

No. 35 Accuracy of Meteorological Data Obtained by Tracking the ROBIN with MPS-19 Radar, Robert W. Lenhard, Jr., Major, USAF, and Margaret P. Doody, Dec 1963. AFCRL-63-938; AD 434 379

No. 43 A Preliminary Evaluation of the Cricketsonde Rocket System, Konstantins Poos, Jun 1964. AFCRL-64-469; AD 603 592

No. 69 Evaluation of the T-755/GMQ-20 Wind Speed and Direction Transmitter, Russell M. Peirce, Jun 1965. AFCRL-65-444; AD 619 171

No. 79 A System for the Determination of the Vertical Wind Profile From an Aircraft, James F. Morrissey, Sep 1965. AFCRL-65-704; AD 625 188

No. 128 Determining the Degree of Ambiguity in Frost Point Temperatures as Measured by an Optical Dew Point Sensor, Russell M. Peirce, and Ruben H. Guenthner, Mar 1967. AFCRL-67-0147; AD 651 651

No. 130 The SPARSA Atmospheric Electricity Detection System as Modified by the Addition of the Image Storage Tube Electro-Optical Triangulation Computer, Part I, Bernard D. Weiss, Mar 1967. AFCRL-67-0183; AD 651 818

No. 133 Stratospheric Humidity Sensing with the Alpha Radiation Hygrometer, Frederick J. Brousaides, and James F. Morrissey, Nov 1967. AFCRL-67-0604

No. 137 Use of the AN/FPS-77 for Quantitative Weather Radar Measurements, Wilbur H. Paulsen, Jan 1968. AFCRL-68-0013

No. 140 Error Analysis of the Humidity-Temperature Measuring Set AN/TMQ-11, Bernard D. Weiss, Mar 1968. AFCRL-68-0154

No. 143 An Analysis of the Performance of the Three-Station SPARSA Network for Detecting and Tracking Thunderstorm Activity, Bernard D. Weiss, May 1968. AFCRL-68-0272

No. 151 An Evaluation of the Aluminum Oxide Humidity Element, Frederick J. Brousaides, Oct 1968. AFCRL-68-0547

2.2 Geophysical Research Notes

No. 47 Wind Speeds from GMD-1 Ascents Computed Electronically Compared to Plotting Board Results, H.A. Salmela, Oct 1960. AD 250 861

No. 60 Hourly Rawinsondes for a Week, A. Court, and H.A. Salmela, Jul 1961. AD 273 303

No. 63 Flight Information and Experimental Results of Inflatable Falling Sphere System for Measuring Upper-Air Density, G.A. Faucher, R.W. Procnier and C.N. Stark, Aug 1961. AD 265 172

No. 73 Accuracy of Density from the ROBIN Falling Sphere, R. Leviton and J.B. Wright, Dec 1961. AD 274 213

2.3 Research Notes

AFCRL-62-1110 Wind Measuring Set AN/GMD-20(v) System Evaluation, Russell M. Peirce, Jr., Dec 1962. AD 298 646

2.4 Research Reports

(1) AFCRL-62-1136 Upper Atmosphere Density Obtained from Falling Spheres Drag Measurements, G.A. Faucher, R.W. Procnier and F.S. Sherman, Dec 1962. AD 405 736

(2) AFCRL-63-836 Mesospheric Winds from 23 Successive Hourly Soundings, R.W. Lenhard, Jr., Major, USAF, and J.B. Wright, Jul 1963. AD 417 441

2.5 Environmental Research Papers

No. 85 An Investigation Into the Use of Temperature Gradients as an In-Flight Warning of Impending Clear Air Turbulence, George S. McLean, Feb 1965. AFCRL-65-117; AD 613 691

No. 113 A Catalogue of ARCAS - ROBIN Soundings, Robert W. Lenhard and Arthur J. Kantor, Jun 1965. AFCRL-65-449; AD 622 667

No. 301 Error Analysis of the 10-g, 30-g and 100-g Balloon Height Tables, Bernard D. Weiss, Jun 1969. AFCRL-69-0260

2.6 Air Force Surveys in Geophysics

No. 131 An Investigation of Symbol Coding for Weather Data Transmission, P.I. Hershberg, Dec 1960. AFCRL-TN-60-821; AD 258 303

No. 140 Proceedings of the National Symposium on Winds for Aerospace Vehicle Design, Vol I and II, Mar 1962. AFCRL-62-273 (I) and (II); See II 2 through II 5.

No. 154 Proceedings of the AFCRL Scientific Balloon Symposium (1963), Status of Meteorological Sounding Balloons, Robert Leviton (pp 83-90), Dec 1963. AFCRL-63-919

No. 167 Proceedings, 1964 AFCRL Scientific Balloon Symposium, Instability of Spherical Wind-Sensing Balloons, D.F. Reid (pp 213 - 227), Jul 1965. AFCRL-65-486

2.7 Special Reports

No. 57 Proceedings, Fourth AFCRL Scientific Balloon Symposium. Recent Developments in High Altitude Meteorological Balloons, Eric Nelson (pp 1-9) and BALLUTE Retardation Device for Meteorological Rocketsondes, John B. Wright and John J. Graham (pp 239-277) Jan 1967. AFCRL-67-0075

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(2) AFCRL-TR-60-218 April 1960. Analysis of a falling sphere experiment for measurement of upper atmosphere density and wind velocity. Special Projects Group, Univ. of Michigan. PB 150 421

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(7) AFCRL-62-234 AF 19(604)-8340 Final Report, April 30, 1962. Suggestions for the adaptation of the Porcupine II radar for the detection of small atmospheric dielectric irregularities. Richard Bates, National Co., Inc. AD 275 612

(8) AFCRL-62-874 AF 19(628)-338 Final Report, Aug. 31, 1962. Zeolite water vapor adsorption studies. S. Steinberg and S. Rohrbough, General Mills, Inc. AD 284 560

(9) AFCRL-65-448 AF 19(604)-7450 Oct. 1962. Development of methods to determine winds, density, pressure, and temperature from the ROBIN falling balloon. Nicholas A. Engler, Univ. of Dayton Research Institute, Dayton, Ohio. AD 630 200

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(11) AF 19(628)-1624 Final Report, Dec. 1962. Judi-Robin balloon dart sounding vehicle. Robert L. Walker, Rocket Power Inc., Falcon Field, Mesa, Arizona

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Meteorological tracking radar study. G.T. Metrich.
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6. SUBJECT INDEX

Accuracy, meteorological measurement; II 10
Adsorption; III 8
 refractometer; III 89
AIDE; I A 16
Air launched rocketsonde; III 30, III 32
Alpha radiation hygrometer; I A 133, III 36, III 37
Altitude integrating device; I A 16
Aluminum oxide hygrometer; I A 151, II 21, III 44
Amplifier, parametric; I A 29
AMSS; III 70, III 87
 prototype radiosonde; III 96
AN/AMQ-21; III 35
AN/AMQ-27; III 109
AN/DMQ-9; III 10, III 26, III 47, III 67, IV 10
Anemometry; II 4
 sonic (or acoustic); II 29, III 68, III 93
AN/FMN-1; IV 11
AN/FPS-16 radar; II 34, III 40, III 81
AN/FPS-77 radar; I A 137, II 11
 alignment procedure; IV 18
 improved display; IV 17
 RHI scope; IV 18
AN/GMD-1; 1 B 47
AN/GMD-2; I A 25, I A 29, IV 7, IV 8
AN/GMD-4; IV 10
AN/GMQ-20; I A 69, I C
AN/MPS-19; I A 35

Antenna, AN/GMD-2; I A 25
AN/DMQ-9; III 67
Helical; III 67

AN/TMQ-11; I A 28, I A 140, III 23, III 48

AN/TMQ-20; IV 13

AN/TMQ-23; III 104

AN/TPQ-11; II 12

ARCAS; I E 113, II 5, III 1, III 24, III 27
Boosted ARCAS; III 16, III 75, III 103, III 105
Frangible ARCAS; III 61
Retardation (BALLUTE); III 55, III 98

Atmospheric Electricity; (See also SPARSA)
Detection system; III 34, III 63
Instruments; III 6, IV 2

Atmospheric Dielectric Irregularities; III 7

Automatic Meteorological Station; III 4, III 109

Balgol; III 12

Balloons; (See also ROBIN)
Dart; III 11, III 33
Drag, Evaluations of; III 51
Error Analysis Balloon Height Tables; I E 301
Fast Rise; I G 57, III 83
Hydrogen Generator for Balloon Inflation; III 64
Inflation and Launching Device; IV 9
Instability of; I F 167, IV 6
Methods of Obtaining Wind Data; II 22
Reynolds Number Effects; II 17
Rigid Rising Padar Reflective; III 29
ROSE; IF 154, IF 167, I G 57, II 25, II 27, II 34, III 40, III 81, IV 5
Weather; III 13
Wind Response Error, III 29

BALLUTE; I G 57, III 55, III 82, III 98

Boosted ARCAS; III 16, III 75, III 103, III 105

Carbon Humidity Element; IV 16

Cloud Detector
AN/TPQ-11; II 12
Electronic; III 39
Vertical Density Profiles; II 12

Computers
Programs; III 12
Visual Distance; I A 13

Cricketsonde; I A 43

Dart Systems
JUDI ROBIN; III 11, III 33
LOKI; III 53, III 94, III 98
Transponder; III 71
VIPER; III 90

Data Processor; III 28, IV 1

Data Transmission; I F 131

Density

Falling Sphere, Drag; I B 63, I D 1, II 6, II 14, III 2, III 20, II 23
Fluorescence Measurement; III 58
High Altitude Measuring System; III 69
Laser Searchlight; II 9, II 30
ROBIN; I B 73, II 15, II 26, III 9, III 12, III 45
Sparrow HV ARCAS; III 75, III 103, III 105
Spinning Wire Densitometer; III 108
X-15 Pitot Measurements; III 92

Dew Point Sensor

Aircraft Hygrometer; III 54
Electronic; III 5, III 48
Expendable; III 99
Optical; I A 128

Dielectric Irregularities; III 7**Direct View Storage Tube; II 7****Drag (See Density, Spheres)****Dust Layers; II 18****Expendable Helium Cylinder; III 84****Falling Sphere (See Spheres)****Fast Rise Balloon; I G 57, III 83****Fields, Electric; III 41****Fluorescent Density Gauge; III 58****Fortran; III 12****Frangible ARCAS, III 61****Future Planning; II 38****Gas Cylinder; III 84****Gust Structure Analysis; II 33****Haze Layers; II 36****Helium Cylinder; III 84****Humidity (See also Hygrometer)**

Carbon Element; IV 16
Contamination Effects; III 49
Measurement; I A 28, I A 140, III 15, III 23, III 49, IV 13
Sensing; I A 133
Stratospheric I A 133, III 49
Thin - Film Sensors; III 79
Water Vapor Detectors, III 14

Hydrogen Generator; III 64**Hygrometer,**

Aircraft; III 54, III 80
Alpha Radiation; I A 133, III 36, III 37
Aluminum Oxide; I A 151; II 21; III 44
Balloon Borne Optical; II 37
Electronic Dewpoint; III 48
Expendable Dewpoint; III 99
Experimental Aircraft; III 80
Frost Point; III 36, III 37, III 38
Liquid Film; III 62

Stratospheric; I A 133, III 49
Vertical Profile; III 37, III 85, III 106
W-47 Aircraft; III 37

Image Storage Tube; I A 130

Ionospheric Sounding; II 32

Jet Stream
Associated Turbulence; II 3
Detector; III 31

JUDI - ROBIN; III 11, III 33

Laser,
Atmospheric Studies; II 19
Density Measurements; II 9, II 30
Detection of Turbulence; II 8, III 66
Light Scattering From Beam; II 16

Launcher, Mechanical; IV 15

Lidar Radar; III 74
Atmospheric Observations; II 35, II 36, III 95, III 97
Data Analysis; III 95

Lightning Warning and Detection (See SPARSA and Atmospheric Electricity)

LOKI-Dart; III 53, III 94, III 98

Manpack, Radio; II 31

Manual Meteorological Station, Tactical; III 104

Measurement Techniques; II 38, III 65

Meteor Radar Echoes; III 43, IV 12

Meteorological Station, Automatic; III 109

Microwave,
Radio; II 31
Refractometer; III 18, III 22

ML-352; IV 15

ML-476; IV 16

ML-594; IV 9

MPS-19; I A 35

PCM Multiplex Terminal; II 31

Porcupine II Radar; III 7

PPI, Storage Tube; II 7
Dark Trace; IV 17

Precipitation, Vertical Density Profiles; II 12

Pressure Measurement; (See ROBIN, Radiosonde)
Vertical Profile; III 85, III 106

PWN-8B; III 53, III 94, III 98

Radar; (See Laser, Lidar)
Accurate Quantitative Measurements; IV 17
Anamalous Observations; II 1
Data Processor; IV 1
FPS-16; II 34, III 40, III 81
FPS-77; I A 137, II 11

Meteor Techniques; IV 2
MPS-19; I A 35
Porcupine II; III 7
Range Resolver; II 34
Tracking; III 25
Weather; I A 137, II 7

Radiometric Airborne System; III 85, III 106

Radiosonde;

- AMSS; III 96
- Multichannel; III 35
- Portable; IV 4

Rawin Sets;

- AN/GMD-1; I B 47
- AN/GMD-2; I A 25, I A 29, IV 7, IV 8
- AN/GMD-4; IV 10
- Antenna; I A 25, III 67
- Parametric Amplifier; I A 29

Rawinsondes, Hourly; I B 60

R & D Program; II 38

Refractometer; III 18

- Adsorption; III 89
- Effects of High Humidity; III 22
- Instabilities; III 101
- Transient Response; III 73

Remoting by Manpack Radio; II 31

Retardation Devices; (See BALLUTE)

Reynolds Number Effects; II 17

RISS; III 100

ROBIN; I A 35, I B 73, I E 113, II 15, II 34, II 5, II 40, III 3, III 9, III 12, III 19, III 25, III 45, III 50

- Drag Evaluation of; III 51
- Estimation of Errors; II 26
- Inflation Reliability; III 88
- High Altitude; III 77
- VIPER Dart; III 90

Rockets, Sounding; III 46 (See also, ARCAS, ROBIN, Cricketsonde, Dart)

Rocketsonde; (See ARCAS, ROBIN, Dart)

- Air-Launched; III 30, III 32
- AMQ-21 Multichannel; III 35
- DMQ-9; III 10, III 26, III 47, III 67, IV 10
- Thermometers; III 86, III 111

ROSE; II 25, II 27, II 34, III 40, III 81, IV 5

Runway Visual Range; IV 11

Salton Sea Wind Tests; III 17

Slant Range; III 56

Sonic Anemometry; II 29, III 68, III 93

- Thermometers; III 21

Sounding Systems (See Rawin Sets, Radiosonde)
Advanced; III 70, III 87, III 96
Air Launched Rocketsonde; III 30, III 32
Air Launched Windsonde; I A 79, III 107, III 110
AMSS; III 70, III 87, III 96
Low Level; III 76, IV 15
Refractive Index; III 100
RISS; III 100
Rocket Systems; (See ARCAS, Dart, ROBIN, Rocketsonde)
SPARSA; I A 130, I A 143, III 63, IV 2
Spheres, Ascending (See also, Balloons)
Reynolds Number Effects; II 17
Spheres, Falling (See also, ROBIN)
Drag Coefficients of Spheroids; III 20
Drag Measurements; I B 63, I D 1, II 6, II 14, III 2
Horizontal Oscillations of; III 42
Inflatable; III 75, III 105
Instability; IV 6
Wind Details; II 24
Storage Tube, Direct View; II 7
Symbol Coding, Weather Data Transmission; I F 131
T-75/GMQ-20; I A 69
Tactical Equipments;
Airborne Radiometric Sounding System; III 85, III 106
Air Launched Windsonde; I A 79, III 107, III 110
Balloon Inflation and Launching Device; IV 9
Crocketsonde Rocket; I A 43
Discussion of; II 41
Expendable Helium Cylinder; III 84
Hand-held Wind Sensor; IV 14
Low Level Sounding System; III 76
Manual Meteorological Station; III 104
Portable Radiosonde System; IV 4
Remote Automatic Weather Station; III 4, III 109
Remoting of Meteorological Sensors; II 31
Temperature Measurement (Also see Sounding Systems)
Air-Launched Rocketsonde; III 30, III 32
AN/TMQ-11; I A 28, I A 140, III 23
Bead Thermistors; III 72, III 111
Dew Point; IV 13
Error Analysis; I A 140
Frost Point; I A 128
Gradients and CAT; I E 85
Low Temperature Deduced from Density; II 23
Pitot Measurements; III 92
Radiometric; III 85, III 106
Rocketsonde Thermometer; II 20, III 86
Sensors; III 82, III 91
Sonic Thermometer, III 21
Wind Tunnel Evaluation; III 91
Thermistors;
Bead; III 72, III 111
Mount Configuration; II 20
Radiation Balance; III 86

Thermometers (See Temperature)
Thunderstorms; III 63 (See Atmospheric Electricity, SPARSA)
Transponder (See also, Dart)
 Dart; III 71
 Use for Atmospheric Soundings; II 28
Tracking Drive System, Precision; III 57
Tracking Errors; III 102
Turbulence; Clear Air; I E 85, II 3, II 13, III 41, III 52, III 59, III 66, III 78
 Correlation with Electrical Activity; III 41, III 52
 Correlation with Jet Streams; II 3
 Correlation with Low Frequency Electrical Characteristics;
 III 60, III 78
 Correlation with Temperature Gradients; I E 85
 Laser, Detection of; II 8, III 66
VIPER Dart; III 90
Visibility;
 Airfield Approach; II 35
 Haze Layers; II 36
 Runway Visual Aids; IV 11
 Slant Range; III 56
 Visual Distance Computer; I A 13
Water Vapor;
 Adsorption; III 8
 Detectors; III 14
 Frost Point; III 36, III 37, III 38
Weather Station;
 Data Transmission; I F 131
 Remote, Automatic; III 4, III 109
 Tactical Manual; III 104
Winds (See also, ROBIN, ROSE, Rocketsonde);
 AN/GMQ-20; I A 69, I C
 Errors, II 27, III 17, III 102
 From Aircraft; I A 79, III 107, III 110
 From Falling Spheres; II 24, III 2
 Hand-held Sensor; IV 14
 Measurement; II 22
 Measuring Set; I C
 Mesospheric; I D 2
 Meteor Radar Echoes; III 43
 Profile, Sounding Technique; II 2
 Shears; III 40
 Sonic Anemometry; II 29, III 68, III 93
 Successive Soundings; I B 60, I D 2
 Surface; II 4
 Tracking Errors; III 102
 Vertical Profile; I A 79, III 107, III 110
X-15 Pitot Measurements; III 92
Zeolite, Adsorption by; III 8

7. AUTHOR INDEX*

Bisberg, Arthur; II 29
Brousaides, Frederick J.; IA 133, IA 151, II 21, II 37, IV 16
Carten, Andrew S.; II 10, II 20, II 38, II 41
Cleenesha, B.R.; II 9, II 16, II 18, II 19, II 30
Collis, R.T.H.; II 35
Court, A.; IB 60
Doody, Margaret P.; IA 35
Engler, Nicholas A.; II 5, II 24, II 25
Faucher, G.A.; IB 63, ID 1, II 6, II 14, II 23
Forti, G.; IV 12
Georgian, E.J.; II 28, IV 7, IV 8, IV 10
Gibson, Frank W.; II 8
Godbout, Ronald; IV 11
Griffin, Jack R.; IA 16, IV 4
Grossi, M.D.; IV 12
Guenthner, Ruben H.; IA 16, IA 128
Harney, Patrick J.; II 1, II 33
Hershberg, P.L.; IA 13, IA 16, IF 131
Hubbard, Donn B.; IV 4
Kantor, Arthur J.; IE 113
Kent, G.S.; II 9, II 16, II 18, II 19, II 30
Lenhard, Robert W.; IA 28, IA 35, ID 2, IE 113
Leviton, Robert; IB 73, IF 154, II 2, II 15
Luers, James K.; II 22, II 26
Matthews, Anthony; II 39
McCloskey, John W.; II 34
McClure, Jerold T.; II 31
McLean, George; IE 85, II 3
Mineo, Jack A.; II 31
Morrissey, James F.; IA 133, IA 79, II 14, II 20, II 21, II 37, IV 16
Oblanas, John; II 36
Pagliarulo, Robert P.; IV 2, IV 11
Paulsen, Wilbur H.; IA 137, II 7, II 11, II 12, II 13, IV 1, IV 12, IV 17, IV 18
Peirce, Russell M.; IA 69, IA 128, IC 1, II 4, II 29, IV 13, IV 14
Petrocchi, Pio J.; II 7, II 11, II 12, IV 17
Pocs, Konstantins; IA 25, IA 29, IA 43
Procunier, R.W.; IB 63, ID 1

*Author Index does not include Contractor Scientific and Final Reports.

Reid, Daniel R.; I F 167, IV 6
Salmela, H.A.; I B 47, I B 60
Sandland, P.; II 30
Sherman, F.S.; I D 1
Stark, C.N.; I B 63, II 14
Strange, Jerry D.; II 27
Sullivan, Owen; IV 11
Uthe, E.E.; II 35
Viezee, William; II 35, II 36
Weiss, Bernard D.; I A 28, I A 130, I A 140, I A 143, I E 301, IV 9
Wright, John B.; I B 73, I D 2, I G 57, II 5, II 15, II 17, II 40, IV 3, IV 5, IV 15
Wright, R.W.H.; II 9, II 16, II 18, II 19, II 30
Wright, William J.; II 32

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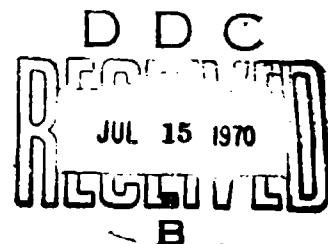
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Errata

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<u>For Section</u>	<u>Read Section</u>
2	I
2.1	A
2.2	B
2.3	C
2.4	D
2.5	E
2.6	F
2.7	G
3	II
4	III
5	IV



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